

Achieving target low-density lipoprotein cholesterol levels in the Polish population

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In the current editorial, we discuss a review by Jankowski et al.,¹ published recently in the *Polish Archives of Internal Medicine*. The paper focuses primarily on the current hypolipemic drugs and their mechanisms of action, while only sparingly describing the actual strategies to control hypercholesterolemia in the Polish population.

Jankowski et al.¹ described in great detail the mechanisms of action of several lipid-lowering drugs, including statins, ezetimibe, fibrates (fenofibrate), and nicotinic acid. However, the nicotinic acid and colessevelam – an anion-exchange resin – are currently unavailable in Poland. Furthermore, the authors compared the hypolipemic effectiveness of various doses of individual statins and in combination with other agents (statin + ezetimibe). Additionally, the results of several international clinical trials were reviewed with respect to the ability of lipid-lowering drugs to: decrease the prevalence of cardiovascular events (JUPITER – rosuvastatin 20 mg daily as primary prevention, SEARCH – simvastatin 80 vs. 20 mg daily in survivors of myocardial infarction), slow down the progression of coronary atherosclerosis (COSMOS – rosuvastatin initially 2.5 mg, subsequently increased to 20 mg; ASTEROID – rosuvastatin 40 mg), and finally, slow down the progression of albuminuria (PLANET I and PLANET II – atorvastatin 80 mg vs. rosuvastatin 10 and 40 mg). Finally, the authors described 2 clinical trials examining the effect of various combination therapies on the frequency of cardiovascular events (ACCORD Lipid: simvastatin + fenofibrate vs. simvastatin + placebo) as well as on atherosclerosis estimated by carotid intima-media thickness (ARBITER-6 HALTS: statin + nicotinic acid vs. statin + ezetimibe). The present paper is focused on the experience of the previous 12 years (1997/1998–2010) in treating hypercholesterolemia in Poland and reviews recent publications on this issue.

Efficient prevention of cardiovascular events relies predominantly on achieving the target levels of low-density lipoprotein cholesterol (LDL-C). Its particularly low target values were established as a result of clinical trials involving administration of statins. These trials demonstrated clearly that reduction in the frequency of cardiovascular events due to cardiovascular disease (CVD), including ischemic heart disease (IHD), was proportional to the reduction in LDL-C levels. The lower the achieved LDL-C levels, the fewer clinical events were observed. Results of the study involving 170,000 participants were recently assessed by a meta-analysis and published by the Cholesterol Treatment Trialists' Collaborators.² As a result, the initial target LDL-C level for secondary prevention was established at <2.5 mmol/l, and subsequently lowered to <1.8 mmol/l.³

It will be of interest to take a closer look at the Polish experience in achieving target levels of LDL-C, especially in patients with diabetes and IHD.

The STOK nationwide survey (Standard Terapii i Opieki Kardiologicznej) was conducted in Poland in 2002 and included 33,684 CVD patients evaluated at discharge from the hospital.⁴ The study was designed to collect data on the rate of achieving the recommended LDL-C levels (<2.5 mmol/l) and the use of statins in this patient group. Surprisingly, only 14% of those patients (n = 4792) had the recommended LDL-C levels, although 92% of the analyzed population was receiving statins.

Another study conducted in Poland from 2003 to 2005, SPOK (Standard Podstawowej Opieki Kardiologicznej), investigated the efficiency of lipid-lowering therapies in 31,116 patients at high risk of developing episodes of IHD, including 26,952 patients under secondary prevention (86.6%) and 8972 survivors of myocardial infarction (33.28%). A total of 1545 randomly selected primary care

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physicians completed the questionnaires. While 79.4% of the patients in the study received statins, only 16.9% of men and 15.8% of women who experienced myocardial infarction had their LDL-C levels below 2.5 mmol/l.⁵

A subsequent study (RECENT) conducted in 2005 enlisted collaboration of a representative group of randomly selected primary care physicians and specialists who recruited a total of 2593 patients with stable coronary artery disease (CAD).⁶ Statins were administered in 71.9% of the patients; unfortunately, the study did not examine LDL-C levels in these subjects and was mainly focused on the assessment of their ambulatory pharmacological treatment.

Another study, 3ST-POL, was conducted on a significantly larger scale in 2007. It enrolled 49,950 outpatients.⁷ Almost half of the patients (46.5%) was diagnosed with IHD, 20% survived myocardial infarction, and 10% had a history of transient ischemic attack or stroke. Among these high-risk individuals, only 15.6% had LDL-C levels below 2.5 mmol/l. Atorvastatin and simvastatin (49.1% and 44.8% of the patient population, respectively) were the 2 most commonly used statins, administered usually at a daily dose below 20 mg.

A report prepared by the Polish Registry of Acute Coronary Syndromes (PL-ACS), which assessed the evolving therapeutic approaches in the pharmacotherapy of myocardial infarction in Poland revealed that 75.4%, 72.3%, 74.4%, 72.9%, 77.0%, 78.7%, and 80% of the patients were receiving statins in 2003, 2004, 2005, 2006, 2007, 2008, and 2009, respectively.⁸ Again, establishing the percentage of patients with acute coronary syndrome who reached ideal levels of LDL-C was beyond the scope of the study.

The Cracovian Program for Secondary Prevention of Ischemic Heart Disease was initiated in 1996, and subsequently continued within the Polish sections of the EUROASPIRE II and III surveys.⁹ It involved 5 departments of cardiology within the Cracow city limits and offered a valuable insight into the evolution of the therapeutic approach throughout over 10 years of follow-up. The aim of this program was to improve the quality of post-discharge secondary prevention. It demonstrated a steady increase in the percentage of patients treated with statins from 28.7% in 1997/1998 through 34.2% in 1999/2000 and up to 85.4% in 2006/2007. The percentage of patients with LDL-C values below 2.5 mmol/l was increasing in a similar way, from 12.6% through 13.1% and up to 60.7%.

Improvement in achieving LDL-C target levels, when compared with the previous years of EUROASPIRE, was observed in patients with IHD in 2010 and reported in the Kardio-Pol registry. The registry was developed to collect data regarding the therapy of CVD, diagnostic approaches, and modulatory risk factors in Polish patients with CVD or diabetes (Opolski G, Strojek K, Kurzelewski M, et al.; unpublished data). Although the study

was limited in terms of the patient number (186 patients with CAD and 210 patients with diabetes), it was properly designed to ensure random selection of patients (10 subsequent patients from 20 primary care clinics randomly selected from a list of all such clinics in Poland). LDL-C levels below 2.5 mmol/l were reported in 51.7% of the patients with IHD and 57.4% with diabetes, while the use of statins reached 86.6% and 64.3%, respectively. Simvastatin was used more often than atorvastatin both by patients with IHD (56.9% vs. 43.5%) and with diabetes (57.8% vs. 40.7%). In the context of the recent guidelines for the management of dyslipidemias published by the European Society of Cardiology,³ percentages of patients with LDL-C levels below 1.8 mmol/l were particularly relevant and reached 26.5% for IHD and 28.8% for diabetes.

However, the results reported by ARETAEUS 1 were less impressive.¹⁰ The survey was conducted in 2009 in diabetic patients diagnosed not more than 2 years prior to the study and included 1714 inhabitants of various regions of Poland with and without IHD. Only 20% of diabetic patients had LDL-C levels below 2.5 mmol/l. Target levels of triglycerides (<1.7 mmol/l) were detected in 44% of the analyzed population, while target levels of HDL-C (>1.0 mmol/l in men and >1.3 mmol/l in women) were achieved in 55% of the patients. Statins were administered in 80% of diabetic patients without coexisting CAD.

Finally, the most recent study, NATPOL 2011, involving 2417 Polish residents investigated cholesterol levels and use of hypolipemic drugs (predominantly statins) in the population aged 18–79 years (Zdrojewski T, Bandosz P, Wyrzykowski W. NATPOL 2011; unpublished data). Mean total cholesterol levels decreased from 206.7 mg/dl (5.34 mmol/l) in 2002 to 197.8 mg/dl (5.11 mmol/l) in 2011 – a phenomenon that was most pronounced in the oldest group (60–79 years, a decrease from 223.8 mg/dl [5.78 mmol/l] to 203 mg/dl [5.24 mmol/l]). Slight decreases were also detected in 2 younger age groups (18–39 years: 188.3 mg/dl [4.87 mmol/l] to 183.3 mg/dl [4.74 mmol/l]; 40–59 years: 218.9 mg/dl [5.66 mmol/l] to 213 mg/dl [5.5 mmol/l]). The oldest group had the highest percentage of statin-treated individuals (32%) as compared with the 18–39 and 40–59 age groups (1% and 11.4%, respectively). The study does not report data concerning statin use in 2002, but based on the previously described studies, it can be safely assumed that lipid-lowering pharmacotherapy was less common at that time. The highest increase in the use of statins was observed in patients aged 60–79 years, probably due to high prevalence of CVD and diabetes in this group, which also explains the largest decrease of total cholesterol levels in this population.

In conclusion, the above publications suggest that lipid-lowering pharmacotherapy is gradually becoming more and more common in Poland. Importantly, the percentage of patients

with CAD that have achieved LDL-C levels below 2.5 mmol/l is steadily on the rise. Nevertheless, there is still room for improvement, especially in the context of the recently published guidelines for the management of dyslipidemias and much lower (1.8 mmol/l) target values for LDL-C in patients with CVD.³

REFERENCES

- 1 Lipid-lowering drugs and control of hypercholesterolemia in Poland: recent evidence. Piotr Jankowski, Małgorzata Kloch-Badelek, Dorota Dębicka-Dąbrowska. *Pol Arch Med Wewn.* 2011; 121: 164-167.
- 2 Cholesterol Treatment Trialists' (CTT) Collaborators. Efficacy and safety of cholesterol-lowering treatment: prospective meta-analysis of data from 170,000 participants in 26 randomized trials. *Lancet.* 2010; 376: 1670-1684.
- 3 Reiner Z, Catapano AL, De Becker G, et al. ESC/EAS guidelines for the management of dyslipidemias. *Eur Heart J.* 2011; 32: 1769-1818.
- 4 Filipiak K, Opolski G. Epidemiological aspects of dyslipidemias and their therapy in Poland. In: B.Cybulska, L. Kłosiewicz-Latoszek, eds. *Dyslipidemias*. 2nd ed. Poznań, Poland: Termedia; 2011: 54-67.
- 5 Pietrasik A, Starczewska M, Głowczyńska R, et al. Secondary prevention of myocardial infarction in primary care – selected results of POLCARD-SPOK Study. *Kardiol Pol.* 2006; 64: 210-217.
- 6 Banasiak W, Wilkins A, Pociupany P, Ponikowski P. Pharmacotherapy in patients with stable coronary artery disease on an outpatient basis in Poland. RECENT study. *Kardiol Pol.* 2008; 66: 642-649.
- 7 Śliż D, Mamcarz A, Filipiak K, et al. 3ST-POL trial: Standards of statin use in Poland in the context of the European Society of Cardiology guidelines. *Pol Arch Med Wewn.* 2010; 120: 328-333.
- 8 Poloński L, Gąsior M, Gierlotka M, et al. What has changed in the treatment of ST-segment elevation myocardial infarction in Poland in 2003-2009? Data from the Polish Registry of Acute Coronary Syndromes (PL-ACS). *Kardiol Pol.* 2011; 69: 1109-1118.
- 9 Pająk A, Jankowski P, Kawecka JK, et al. Changes in secondary prevention of coronary artery disease 1997-2007. Results of the Cracovian Program for Secondary Prevention of Ischaemic Heart Disease and Polish parts of EUROASPIRE II and III surveys. *Kardiol Pol.* 2009; 67: 1353-1359.
- 10 Bala M, Leśniak W, Placzkiewicz-Jankowska E, et al. Cardiovascular risk factors control in Polish patients with type 2 diabetes within the first two years of diagnosis: results of the ARETAEUS 1 study. *Kardiol Pol.* 2011; 69: 1249-1257.